

# Salmon Data Management Team

Northwest Fisheries Science Center

Richard S. Kang

Salmon Data Management Team Leader

206-860-6786

[richard.kang@noaa.gov](mailto:richard.kang@noaa.gov)

Nov. 18, 2003

# Issues, Concerns and Opportunities?

- **Where is the data** (tabular and spatial), metadata, documents, analysis tools, discussions, links, project information and contacts needed for BIOP, M&E and Salmon Recovery activities?
- **How do researchers, project managers, and the public better interface with the Web** as a “working system” to store, find, analyze, collaborate, and share data and documents available in a distributed environment?
- **How can we get access to the salmon and environmental data** in a way easy for users to use and update? Example: Salmon Abundance, Genetics, Telemetry data, Streamnet, OWEB, PRISM, CALFISH, SSHIAP, DART, EMAP, NRIS, hatcheries data, and data not on the internet, spreadsheets, ASCII files, legacy data on paper, etc.
- **How can we better utilize current software/hardware advancements** with dedicated application development teams and data analysts to support BIOP, M&E, CBCIS, and Pacific Coast Salmon Recovery Fund efforts?

# The New Information Environment

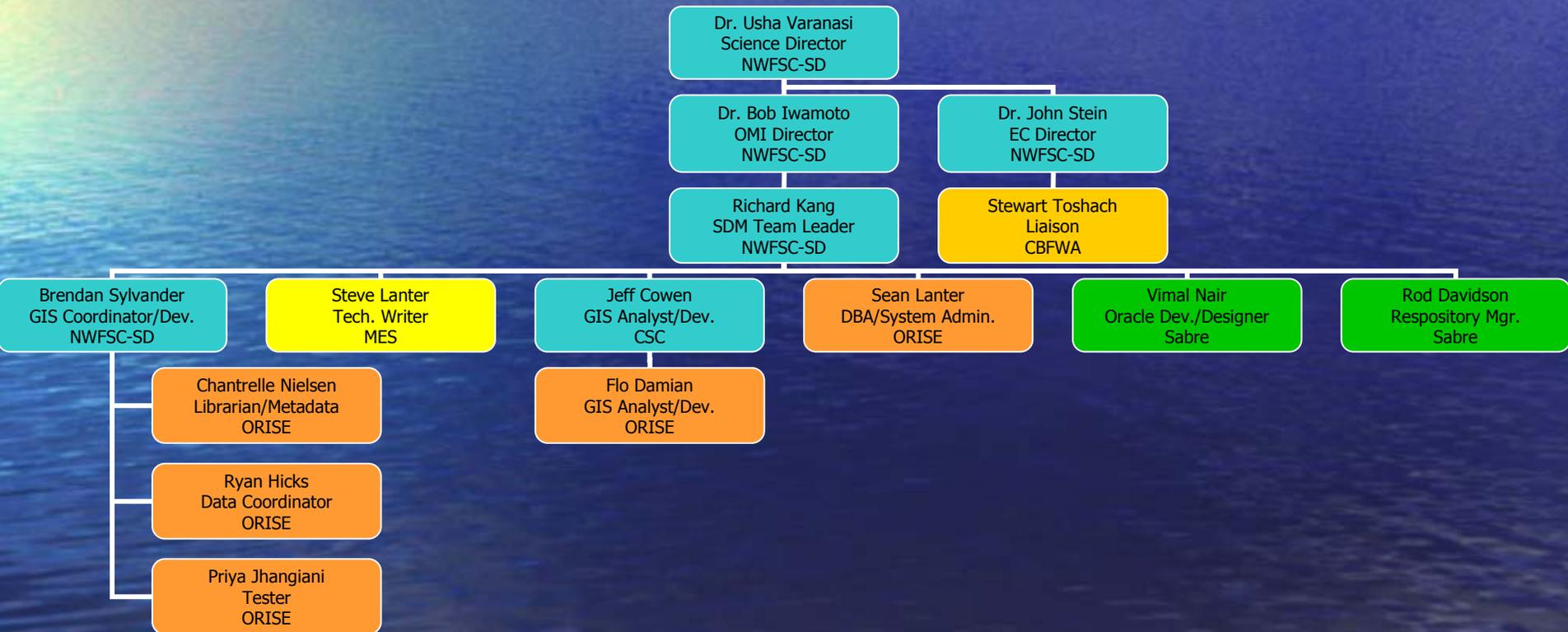
- **Having data is not the issue**
  - **There are large amounts of information**
    - **Distributed**
    - **Heterogeneous**
    - **Rapidly changing**
- **Having the right data is not the issue**
- **Knowing that you have the right information, and knowing it at the right time is the issue**

# SDM Mission Statement

The Salmon Data Management team will, for NWFSC scientists and external customers:

- Promote collaboration, communication, and coordination using e-Gov principles and enterprise-wide architecture framework to share and access internal and external information and data;
- Provide and maintain “corporate” data, metadata, and applications;
- Support analysis and project management services, and
- Respond in a timely and effective manner.

# Northwest Fisheries Science Center Salmon Data Management Team – 11



# SDM Methodology

- Awareness
- Assessment
- Design/Development/Testing
- Transition/Training
- Deployment
- Maintenance
  
- Project Planning
- Documentation
- Independent Validation and Verification

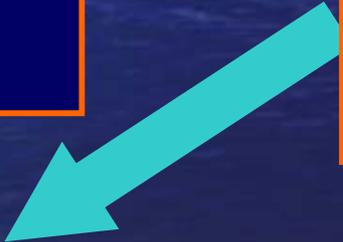
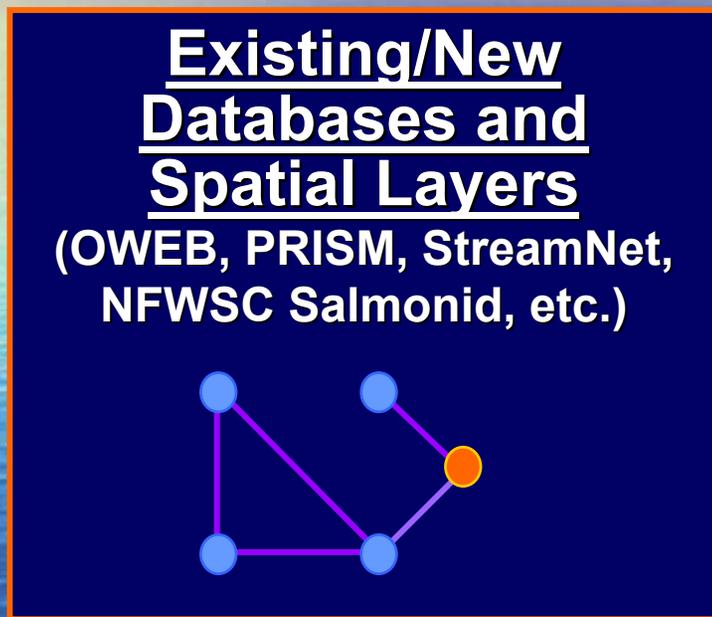
# SDM Development and Production Environments

- Setup and Baseline SDM Hardware Environments using “Corporate” Software and Hardware – Winter 2002
  - Oracle 8.1.7 DBMS w/ 340 Gigs Raid 5
  - Oracle9iAS, Oracle Designer 6i, Oracle Developer
  - ESRI SDE on Oracle 9i w/ 340 Gigs Raid 5
  - IMS Web Server, Apache Server, IIS
  - ESRI/ERDAS License Key Manager
  - SDM Staff Fileserver 340 Gigs at Raid 5
  - 12 Dual P4 1.7 – 3.0 GHz w 2 Gig Workstations
  - Network upgrades to 100 MB LAN and 1 Gig Fiber

# Habitat Restoration Project

– Data Elements 1, 2, 3,....  
(monitoring results-“raw data”)

# Habitat Restoration “Information System”



# SDM Prototype/Pilot Demonstrations - 2003



**NWFSC SDE Data Layers**



**Northwest Fisheries Science Center  
Collaboration Website**

# OWEB Prototype

The screenshot displays the OWEB prototype web application in a Microsoft Internet Explorer browser. The interface is divided into several sections:

- Browser Window:** Shows the URL `http://koi_3/pls/portal30/PORTAL30.wwa_app_module.show?p_sessionid=344`.
- OWEB Logo:** Located in the top left corner.
- Navigation:** Includes links for HOME, SITEMAP, and CONTACTS, and a date of January 28, 2002.
- Projects by Basin Report:** A table showing the number of projects for various basins across all years.
 

Basin Name	Number of Projects
Willamette (Upper)	160
Willamette (Mid)	149
Umpqua	114
Coquille	68
Lower Columbia	56
Siletz	53
Nehalem	51
Tillamook Bay	45
Rogue	38
Coos	24
- Participant and Funding Information:** A form for entering participant details, including organization name, email address, and landowner information.
- Restoration Project Location:** A form for entering stream and tributary information, such as stream name, tributary, and township.
- Restoration Project Information:** A section for providing additional project details.
- CSC ArcIMS Template Version 2.2:** A central panel with a legend and map controls.
  - Legend:** Lists various data layers with checkboxes:
    - CITY
    - Instream Project
    - Major Stream
    - River
    - 5th Field HUC
    - USGS Topo IMAGE
    - COUNTY
    - 4th Field HUC
  - Map Controls:** Includes buttons for Locator Map, Full Extent, Metadata, Help, Clear Selected, and Submit, along with standard map navigation icons.
  - Map:** A topographic map showing the area around Cannon Beach, Oregon, with labels for Chapman Point, Cannon Beach, and Cannon Creek. A scale bar indicates 0 to 1000 meters.

# NWFSC GIS Spatial Layers

Salmon Data Management Team  
Northwest Fisheries Science Center

The screenshot displays a web-based GIS application interface. At the top, a blue header contains the text "Salmon Data Management Team" and "Northwest Fisheries Science Center". Below this, a "Netscape" browser window shows the application. On the left, a sidebar contains a "Subject:" field with "Locations of Hydrograph" and "Comments:" with "Locations recorded, regulator Data Loca Quality a". Below this is a "Dataset D" section with "January" and "Date Us". At the bottom left, a "Complete" section has "Yes" and "No" radio buttons. The main content area is titled "NWFS SDE Data Layers" and features a "Refresh Layers" button. A list of layers is shown with checkboxes and symbols: 

- WATER\_CERCLA (blue dot)
- SNOWPACK\_MONITORING (cyan dot)
- Shoreline (blue wavy line)
- Bathymetry (blue wavy line)
- RIV\_WAORID\_100K (blue wavy line)

 Below the list is a small locator map of the Pacific Northwest. The main map area shows a detailed view of the Columbia River estuary, including "Disappointment", "Astoria", and "TILLAMOOK HEAD". The map includes bathymetry contours, shoreline, and various navigational markers like "RW '07 Strobe Mo (A) WHIS" and "RW '07 Strobe Mo (A) HORN RACON (-)". A "Locator Map" button is visible in the top right of the map area. The bottom of the map area includes a compass rose and a scale bar.

# NWFSC Salmonid Database

Action Edit Query Block Record Field Help

Abundance Series Query & Edit - Version 1.0.13

Species: CHINOOK ESU: Chinook - Upper Columbia River - Summer/F... Run: [Dropdown]

Stage: Juvenile Population: [Dropdown] Production: Combined Hatchery

State: [Dropdown] Stream: [Dropdown]

	A	B	C	D	E	F	G	H	I	J	K	L	M
	SeriesID	Series Name	Begin Year	End Year	Species	ESU	RUN	Population	Production	Parent Ser	Stage	Sample Ty	Sar
1													
2	5275	5275-WA F	1995	2001	CHINOOK	Chinook - I	Winter		Hatchery		Juvenile	Total live fi	Dar
3	5275	5275-WA F	1995	2001	CHINOOK	Chinook - I	Winter		Hatchery		Juvenile	Total live fi	Dar
4	5275	5275-WA F	1995	2001	CHINOOK	Chinook - I	Winter		Hatchery		Juvenile	Total live fi	Dar
5	5275	5275-WA F	1995	2001	CHINOOK	Chinook - I	Winter		Hatchery		Juvenile	Total live fi	Dar
6	5275	5275-WA F	1995	2001	CHINOOK	Chinook - I	Winter		Hatchery		Juvenile	Total live fi	Dar
7	5275	5275-WA F	1995	2001	CHINOOK	Chinook - I	Winter		Hatchery		Juvenile	Total live fi	Dar
8	5275	5275-WA F	1995	2001	CHINOOK	Chinook - I	Winter		Hatchery		Juvenile	Total live fi	Dar
9	5274	5274-WA F	1992	1996	CHINOOK	Chinook - I	Winter		Hatchery		Juvenile	Total live fi	Dar
10	5274	5274-WA F	1992	1996	CHINOOK	Chinook - I	Winter		Hatchery		Juvenile	Total live fi	Dar
11	5273	5273-WA F	1992	2001	CHINOOK	Chinook - I	Winter		Hatchery		Juvenile	Total live fi	Dar
12	5273	5273-WA F	1992	2001	CHINOOK	Chinook - I	Winter		Hatchery		Juvenile	Total live fi	Dar
13	5273	5273-WA F	1992	2001	CHINOOK	Chinook - I	Winter		Hatchery		Juvenile	Total live fi	Dar
14	5273	5273-WA F	1992	2001	CHINOOK	Chinook - I	Winter		Hatchery		Juvenile	Total live fi	Dar
15	5273	5273-WA F	1992	2001	CHINOOK	Chinook - I	Winter		Hatchery		Juvenile	Total live fi	Dar
16	5273	5273-WA F	1992	2001	CHINOOK	Chinook - I	Winter		Hatchery		Juvenile	Total live fi	Dar
17	5273	5273-WA F	1992	2001	CHINOOK	Chinook - I	Winter		Hatchery		Juvenile	Total live fi	Dar
18	5273	5273-WA F	1992	2001	CHINOOK	Chinook - I	Winter		Hatchery		Juvenile	Total live fi	Dar
19	5273	5273-WA F	1992	2001	CHINOOK	Chinook - I	Winter		Hatchery		Juvenile	Total live fi	Dar
20	5273	5273-WA F	1992	2001	CHINOOK	Chinook - I	Winter		Hatchery		Juvenile	Total live fi	Dar
21	5272	5272-WA F	1986	2001	CHINOOK	Chinook - I	Winter		Hatchery		Juvenile	Total live fi	Dar
22	5272	5272-WA F	1986	2001	CHINOOK	Chinook - I	Winter		Hatchery		Juvenile	Total live fi	Dar
23	5272	5272-WA F	1986	2001	CHINOOK	Chinook - I	Winter		Hatchery		Juvenile	Total live fi	Dar
24	5272	5272-WA F	1986	2001	CHINOOK	Chinook - I	Winter		Hatchery		Juvenile	Total live fi	Dar
25	5272	5272-WA F	1986	2001	CHINOOK	Chinook - I	Winter		Hatchery		Juvenile	Total live fi	Dar
26	5272	5272-WA F	1986	2001	CHINOOK	Chinook - I	Winter		Hatchery		Juvenile	Total live fi	Dar
27	5272	5272-WA F	1986	2001	CHINOOK	Chinook - I	Winter		Hatchery		Juvenile	Total live fi	Dar
28	5272	5272-WA F	1986	2001	CHINOOK	Chinook - I	Winter		Hatchery		Juvenile	Total live fi	Dar
29	5272	5272-WA F	1986	2001	CHINOOK	Chinook - I	Winter		Hatchery		Juvenile	Total live fi	Dar
30	5272	5272-WA F	1986	2001	CHINOOK	Chinook - I	Winter		Hatchery		Juvenile	Total live fi	Dar

Sort Order:  Ascending  Descending

Record: 1/1

abundance03062003112528

### NWFSC Salmonid Abundance Mapping Interface

Locator Map Full Extent Metadata Help Clear Selected Select

Refresh Layers

Legend Name

Check On/Off	Data Layer	Expand Legend
<input checked="" type="checkbox"/>	Series Point Location	
<input checked="" type="checkbox"/>	Series Line Location	
<input checked="" type="checkbox"/>	Series Polygon Location	
<input type="checkbox"/>	PRISM Project	

# NWFSC Collaboration Website

**Salmon Data Management Team**  
National Marine Fisheries Service | Northwest Fisheries Science Center

Home | Projects | Plans | People | Calendar | Documents | Tools/Data | Links | Topics

Welcome Ryan Hicks, it's Thursday, March 06, 2003 [I am not Ryan Hicks]

**Search Filters:**  
 Project: SDM ----- Salmon Data Management (7)  
 Contact: Hicks, Ryan (7)  
 Meeting: Any Meeting (7)  
 Topic: Any Topic (7)

**Search Results:**  
 7 documents found. | Show Descriptions  
 Add selected documents to project: NMFS Northwest Fisheries Science Center

#	Title	DocDate	LastName
1.	Abundance Meeting 9/13/2002 25 K   September 13 salmonid db meeting.doc	9/13/2002	Hicks, Ryan
2.	IM Architecture for 2003 358 K   SDM_IT_ARCH_03.vsd 249 K   Visio-SDM_IT_ARCH_03.pdf	1/8/2003	Hicks, Ryan
3.	NWFSC File System (Alphabetical) 50 K   NWFSCFileSystemAlpha.xls	2/11/2003	Hicks, Ryan

**User Profile: Ryan Hicks**  
 Address: 71W, 1st Lake Boulevard, E., WA 98112  
 Phone: 5786 3634(c), 3217(f)  
 Email: rhng@noaa.gov  
 URL: n3/sdm/index.asp  
 Interests: Interested in Project, Team Building, and Application Development efforts.

**Calendar:**  
 Thursday: 7, 14  
 Friday: 8, 15  
 Saturday: 8, 15

**Tasks:**  
 Add Task  
 4/25/2003 Demo SDM Web  
 2/28/2003 Debug SDM Web Pilot Version 1.0

**Tools:**  
 1. NSD - Salmonid Database  
 2. NWFSC Spatial Layer Data Collection Status  
 3. OWEB Prototype  
 4. Google Toolbar for Internet Explorer

**Documents:**  
 1. RM&E Federal Habitat Tracking Project Agenda 03042003  
 3/3/2003 Ryan Hicks

**Links:**  
 1. Google Toolbar for Internet Explorer

# Live Demonstration of...

- NWFSC Salmonid Database Pilot  
Version 1.1
- NWFSC GIS Spatial Layers – Phase I
- NWFSC Collaboration Web Pilot  
Version 1.4

# Lesson Learned

- Hardware is cheap – speed doubles every 18 months
- Storage is cheap – doubles every 12 months  
(ATA(1X cost)-Serial ATA(2X)-SCSI(7X))
- MS Windows 2000 Server is easy to manage compared to Unix
- Linux Server w/ Oracle 9i DBMS is very stable according to IT
- NMFS Oracle support license is great
- ESRI support license is expensive - \$30K-\$60K/yr for NWFSC
- Reverse Proxy Server/network was difficult to setup but now stable
- Disaster recovery and backup for Development servers with Ghost Casting at \$54/server compared to typical \$750/server and is absolutely essential
- Reusing Oracle Web Forms and Portals templates
- Oracle Designer 6i Repository is increasingly valuable
- People or development costs are the most expensive component
- Moving toward Mercury automated testing, better documentation, and project management
- Data quality issues for both primary and secondary data continue to pose the most difficult challenges in time and labor
- Managing “change” for all of the above will be even more difficult over the life cycle



Q U E S T I O N S  
A N S W E R S